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1. (previously presented) A light source (1) comprising

- a discharge vessel (2) which is filled with a filling gas,
- an electron beam source (4) arranged in vacuum or in a region of low pressure, which source (4) generates electrons (12) and propels them through an inlet foil (8) into the discharge vessel (2),

characterized in that the inlet foil (8) comprises a diamond layer.

2. (previously presented) A light source as claimed in claim 1, characterized in that the diamond layer has a thickness below 100 μm.

3. (previously presented) A light source as claimed in claim 1, characterized in that the diamond layer has a frame (7).

4. (previously presented) A light source as claimed in claim 1, characterized in that the diamond layer has a metal brazing layer.

5. (previously presented) A light source as claimed in claim 1, characterized in that the diamond layer has an organic adhesion layer.

6. (original) A light source as claimed in claim 1, characterized in that the electron beam source comprises a thermionic electron emitter.

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7. (original) A light source as claimed in claim 1, characterized in that the electron beam source comprises a field emitter.

8. (original) A method of manufacturing a foil (8) for a light source (1), characterized by the following process steps:

- carbon atoms are deposited on a substrate (7) so as to form a diamond foil (8), and
- a portion of the substrate is etched away such that a remaining portion (7) of the substrate forms a frame (7) for the diamond foil (8).

9. (original) A method of manufacturing a foil (8) for a light source (1), characterized by the following process steps:

- carbon atoms are deposited on a substrate so as to form a diamond foil (8),
- the diamond foil (8) is removed from the substrate, and
- the diamond foil (8) is brazed to a frame (7).

10. (original) A method of manufacturing a foil (8) for a light source (1), characterized by the following process steps:

- carbon atoms are deposited on a substrate so as to form a diamond foil (8),
- the diamond foil (8) is removed from the substrate (7), and
- the diamond foil (8) is adhered to a frame (7).

11. (previously presented) A gas discharge lamp (1) comprising

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- a discharge vessel (2) which is filled with a filling gas, which vessel is adapted to produce non-coherent visible light from at least one wall in response to received radiation produced by the gas;
- an inlet foil comprising a diamond layer;
- an electron beam source (4) arranged in vacuum or in a region of low pressure, which source (4) generates electrons (12) and propels them through the inlet foil (8) into the discharge vessel (2), causing the gas to produce the radiation.

12. (previously presented) A method of manufacturing a light source, comprising, not necessarily in the following order:

- providing
  - a discharge vessel (2) which is filled with a filling gas, which vessel is adapted to produce non-coherent visible light from at least one wall in response to received radiation produced by the gas
  - an electron beam source (4) arranged in vacuum or in a region of low pressure, which source (4) generates electrons (12) and propels them into the discharge vessel (2), causing the gas to produce the radiation;
- inserting an inlet foil between the source and the vessel, which inlet foil comprises a diamond layer.

13. (previously presented) The method of claim 12, wherein the light source is a gas discharge lamp.

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14. (previously presented) The light source of claim 2, wherein the diamond layer has a thickness below 50μm.

15. (previously presented) The light source of claim 2, wherein the diamond layer has a thickness below 20μm.

16. (new) The light source of claim 7, wherein the field emitter comprises carbon nanotubes for widening the electron beam.